

a curved figure, or half-cylinder. The mode of action of the gill during the respiratory act is precisely the same as in the case of the *Octopus*. The water enters and penetrates in the same direction; it escapes expiratorily in the same manner. In all other respects the branchiæ in these two examples are constructed in precise accordance with the same principle. There is no deviation; in minute structure they are the same.

EXPLANATION OF PLATE XV.

- Fig. 1.* The left gill of *Octopus vulgaris*, *in situ*: *a*, efferent vessel or branchial vein; *b*, afferent vessel or branchial artery; *c*, branchial heart; *d, d*, secondary lobuli of the branchia; *e, e*, tertiary leaflets; *f*, the hindmost lobule, showing that the axis of the gill is closed both behind and anteriorly at *g*; *h, h*, the sub-branchial longitudinal muscle.
- Fig. 2.* Transverse section of the gill (effected through the interlobular space): *a*, branchial vein (in section); *b*, branchial artery; *c*, longitudinal sub-branchial muscle (in section); *d*, attachment to mantle; *e, e, g, g*, secondary lobular artery (or afferent vessel); *f*, the frænum or membrane which forms a framework and supports the branchial foliage, *i, i, i, i*; *h*, represents the water-spaces between the lobuli.
- Fig. 3-3².* Gill of the common *Calamary*, viewed from the dorsal side; *3²*, the same, viewed from the ventral side: *a, a*, secondary lobuli; *b, b*, afferent primary and secondary vessels; *c*, the tertiary lobuli.
- Fig. 4.* Transverse section of the gill of the *Calamary*: *a*, efferent vessel, in section; *b*, afferent ditto; *c, c*, secondary efferent trunks; *d, d*, secondary afferent ditto; *e, e, e*, tertiary foliage; *f, f*, water-spaces; *g, g*, vessel; *h*, frænum by which the gill is attached to the mantle.
- Fig. 5.* Plan of ultimate vessels.
- Fig. 6.* Plan of the same at free border.

XVI.—*Characters of Streptaulus, a new genus, and of several species of the Cyclostomacea from Sikkim, the Khasia Hills, Ava, and Pegu.* By W. H. BENSON, Esq.

STREPTAULUS, Bens. Genus novum.

Testa umbilicata, pupiniformis, nitens; peristoma circulare, non continuum, superne tubulo suturali interno et externo, continuo, ad extremitates ambas aperto, siphonem mentiente, perforatum. Operc. — ?

Streptaulus Blanfordi, Bens., n. s.

Testa umbilicata, oblonga, polita, regulariter oblique striata, striis prope suturam submarginatam fortioribus, lineis nonnullis spirali-bus decussatis, fusco-cornea, translucente; apice obtusiusculo;

anfractibus 5 convexiusculis, penultimo ventricosiori; apertura magna, subcirculari; peristomate simplici, reflexo, subrevoluto, marginibus callo parietali tenui junctis; tubuli suturalis parte externa longa, pone junctionem labri breviter arcuatim elevata, suturam subtus exhibente; umbilico impervio.

Long. $7\frac{1}{2}$, diam. 5 mill. Long. apert. (peristomate incluso) 4 mill.
Hab. prope Darjiling, in montibus Himalayanis Sikkimensibus.
 Teste H. Blanford.

A most interesting new form, intermediate between Dr. Pfeiffer's genus *Rhaphaulus* and the Sikkim and Burmese forms of *Alycæus* exhibited in *A. constrictus*, *Urnula*, and *Amphora*, B. In the last-named shell the sutural tube commences at a very short distance behind the mouth. In *Streptaulus* the tube is first internal, and on arriving at the aperture is suddenly reflected, and instead of forming an opening in the lip above the aperture as in *R. bombycinus*, or ending in a short upright tube as in *R. Lorraini* or *Chrysalis*, Pfr., it describes a short arch behind the lip, and then runs to some distance along the external suture, as in *Alycæus*. In texture and colouring *Streptaulus* agrees with *Rhaphaulus*, not with *Alycæus*, and it is entirely deficient in the strangulation and swelling which characterize the anterior portion of the last whorl in all the species of the latter genus. It inhabits the same tract with *Megalomastoma funiculatum*. None of the larger Pupiform Cyclostomacea are known to travel farther towards the north-west.

Diplommatina diplocheilus, Bens., n. s.

Testa dextrorsa, vix rimata, ovato-conica, subfusiformi, medio ventricosiori, solidiuscula, carneo-albida, vix translucente, leviter nitente; spira conica, apice acuto, sutura profunda; anfractibus $6\frac{1}{2}$ -7 convexis, primis costatis, 3 postremis lævioribus, antepenultimo majori tumido; apertura verticali subauriculari, pallide carnea, nitente, plica columellari valida nutante munita; peristomate duplici, interno continuo expanso, exteriori planato-expanso, infra sinistre angulo saliente desinente, margine sinistro sinuato, callo parietali magno, expanso, superne suturam fere attingente, subtus soluto marginem elevatum efformante. Operculo retractili.

Long. 3, diam. 2 mill.

Hab. ad Teria Ghát, Montium Khasia dictorum portam, satis frequens. Teste W. Theobald.

This shell, which, although abundant, was local on limestone rocks, belongs to the division of *Diplommatina* with a conspicuous plait at the edge of the aperture, described by the Messrs. Adams as *Paxillus*, from the Bornean type "*adversa*," which Mr. H. Adams now regards as a *Diplommatina*. The operculum was remarked by Mr. Theobald when the species was freshly taken. *Diplommatina Huttoni*, Pfr., and the two following

species belong to the same type. There is a strong line of separation between the inner and outer peristome in *D. diplocheilus*, and the relief of the parietal callus above the columella is a marked feature.

Diplommatina pachycheilus, Bens., n. s.

Testa dextrorsa, non rimata, ovato-acuminata, lævi, obsolete costulato-striata, pallide cornea, translucente, nitente; spira attenuato-conica, apice obtusiusculo, sutura impressa; anfractibus 7 convexiusculis, antepenultimo majori tumido; apertura verticali, late auriculari, plica columellari valida, transversa, munita; peristomate subduplici, sinuato, incrassato, infra sinistre angulato, callo parietali expanso, appresso, margine columellari sinuato. Operc. —?

Long. 4, diam. $2\frac{1}{3}$ mill.

Hab. ad Darjiling. Teste H. Blanford.

This is the largest of the known Himalayan species, and, judging from the single specimen received, the most modest in sculpture.

Diplommatina polypleuris, Bens., n. s.

Testa dextrorsa, non rimata, oblongo-ovata, confertim oblique chordato-costulata, pallide carnea, apice obtusiusculo, hyalino, sutura profunda; anfractibus 6 convexis, antepenultimo tumidiusculo; apertura verticali, subcirculari, dente columellari munita; peristomate duplici, interiori expansiusculo, externo expanso, ad basin sinistram angulato-rotundato, callo parietali mediocri, appresso. Operc. —?

Long. vix 2, diam. 1 mill.

Hab. ad Nanclai, non raro.

This little species was found by Mr. Theobald at Nanclai Ponji, forty-five miles from Cherra, in $92^{\circ} 30'$ E. and $25^{\circ} 15'$ N. A minute *Diplommatina* was also met with at Cherra, but the specimen sent is in such a state of decay as not to be susceptible of identification and description.

Alycæus prosectus, Bens., n. s.

Testa mediocriter umbilicata, subcampanulato-depressa, subremote striatula, striis elevatis spiralibus remotiusculis cincta, ad spatium inflatum anfractibus ultimi confertissime et acutissime costulata, albida, versus apicem mucronatum rubella; spira brevi, sutura profunda; anfractibus 4 convexis, subapicali exserto, ultimo ad latus pone stricturam valde gibboso, tubulum suturalem medio-crem gerente, antice læviori; apertura valde obliqua, circulari; peristomate simplici vel duplici, interiori duplicis expansiusculo; exteriori dilatato, superne ad angulum et ad basin alato-producto,

margine columellari angusto. Operculo concavo, lævi, multi-spirato.

Diam. major 7, minor 6, axis 5 mill.

Hab. ad Teria Ghát.

Found abundantly on rocks by Mr. Theobald. It is related to the Burmese *A. umbonalis* (Annals, vol. xvii. p. 225) and to *A. strangulatus*, Hutton. Inferior in size to the former, it is easily distinguished by its sculpture and by the peculiar development of the outer lip at its insertion and base, while the narrow columellar lip gives an appearance of artificial truncation to the peristome at that part. In the variety the internal lip is not developed. The margins of the whorls in the operculum are not conspicuously raised as in *A. umbonalis*.

Alycæus stylifer, Bens., n. s.

Testa umbilicata, depressa, confertim striatula, ad spatium inflatum confertissime acute costulata, nitente, albida; spira brevi, mucronata, apice obtusulo, sutura profunda; anfractibus 4 convexis, ultimo pone stricturam gibbo, tubulum mediocrem gerente, medio stricturæ costam prominentem (intus concavam) exhibente; apertura obliqua, subcirculari, irregulari, sinuata; peristomate simplici, incrassato-reflexo. Operc. —?

Diam. major $5\frac{1}{2}$, minor $4\frac{2}{3}$, axis $3\frac{1}{2}$ mill.

Hab. ad Darjiling. Teste H. Blanford.

The rib behind the outer lip corresponds with a deep sulcus within the aperture. A similar feature is observable in the little Bornean *Alycæus spiracellum*, A. & R., and in the following species. The single specimen from which the description above given was made is a dead and discoloured shell. The two *Alycæi* previously known to inhabit Darjiling are of the pupiform type.

Alycæus hebes, Bens., n. s.

Testa umbilicata, solidiuscula, depressa, vix striatula, ad spatium inflatum et circa umbilicum confertissime striata, carneo-albida, apicem versus rubella; spira conoidea, apice obtusiusculo, sutura impressa; anfractibus 4 convexiusculis, ultimo ad latus gibboso, tubulum mediocrem suturalem gerente, spatio constricto costa valida retro recumbente munito; apertura obliqua, circulari; peristomate continuo, duplici, interiori porrecto, exteriori expanso, incrassato.

Diam. major 4, minor 3, axis 3 mill.

Hab. ad Teria Ghát. Teste W. Theobald.

This species occurs on rocks, and is distinguished by the structure of the aperture from the small Bornean *A. spiracellum*, A. & R. In the latter species, moreover, the rib behind and

above the aperture is nearly parallel with the peristome, whereas in *A. hebes* it looks like a hoop which had fallen backwards on the whorl. In both species it takes its rise at the right side of the peristome, and ends at the suture, corresponding with an internal sulcus.

Leptopoma Cybeus, Bens., n. s.

Testa anguste umbilicata, tenui, turbinato-conica, striatula, lineis elevatis remotis spiralibus cincta, albida, strigis castaneis undulatis picta; spira conica, apice obtusiusculo, sutura impressa; anfractibus 5 convexiusculis, ultimo acute carinato; apertura magna vix obliqua, subcirculari, superne angulata; peristomate expanso-reflexo, margine columellari sinuato. Operculo corneo, 8-spirato.

Diam. major 20, minor 16, axis 14 mill.

Hab. ad Nanclai, raro. Teste W. Theobald.

The narrow umbilicus is nearly hidden by the reflected peristome. A single specimen, in an injured state, has been received. Nanclai is the farthest point to which *Leptopoma* has been traced to the north-west from its eastern focus; and this species vies in size with its Philippine brethren. It leads to *Cyclophorus* through *Lept. Burmanum* and *Cyclophorus expansus*, Pfr. A thin, dead, carinate shell, from Phie Than, on the Tenasserim River, may, in its present condition, be referred either to *Leptopoma*, or, as a variety, to the species of *Cyclophorus* last named, which occurs at the same locality in various states of development, solid and angulate at the periphery, or thinner with an acute carination.

Cyclophorus pinnulifer, Bens., n. s.

Testa late umbilicata, orbiculato-depressa, radiato-striata, striis minutissimis spiralibus decussata, sub epidermide scabra, fusca, albida, superne strigis remotis castaneis radiata; spira planata, apice vix prominulo, sutura profunda; anfractibus 4 convexis, subtus rotundatis, ultimo antice latiori; apertura obliqua, circulari; peristomate leviter expanso, subduplicato, interiori continuo, superne ad angulum vix sinuato, exteriori superne alam verticalem subfornicatam efformante. Operc. —?

Diam. major 13, minor 10, axis $3\frac{1}{4}$ mill.

Hab. ad Teria Ghát, non raro occurrens. Teste W. Theobald.

Related to the Sikkim *C. Phenotopicus* and to *C. Calyx* of Burmah, but more nearly to the latter, from which it is distinguished by its wider last whorl, the absence of any angulation below, and by its more developed peristome. It exhibits a nearer approach to *Pterocyclos*, through *Pterocyclos*? or rather *Cyclophorus brevis*, Martyn, and *Pt. tenuilabiatus*, Metc., than either of those species. Unfortunately the operculum is wanting in

the only specimen forwarded. I conclude, however, that it is flat and horny, as in *Cyclophorus*.

The operculum of *Pt. tenuilabiatu*s, Metcalfe, has been regarded as Choanopomatous, but I consider it to be merely a modified flatter form of the Pterocycloid operculum, nearly agreeing with that of its ally *Pt. hispidu*s, Pearson, possessing a shelly skeleton, concave on the inner side, and with the spiral edges of the volutions on the outer side raised and free.

Cyclophorus? tomotrema, Bens., n. s.

Testa anguste umbilicata, turbinato-pyramidali, radiato-striatula, liris elevatis spiralibus plurimis, nonnullis majoribus, munita, fusco-cornea; spira conica, apice obtusiusculo albido, sutura bene impressa; anfractibus 5 convexis, ultimo subcarinato; apertura obliqua, subcirculari, livida, supra angulata; peristomate duplici, inferiori continuo, expansiusculo, superne ad angulum inciso, exteriori expanso, dilatato. Operc. —?

Diam. $5\frac{1}{2}$, axis 5 mill.

Hab. ad Teria Ghát, raro. Teste W. Theobald.

C.? scissimargo, B., of Tenasserim belongs to the same group as this shell. The incision is at the upper end of the parietal margin.

Cyclophorus cryptomphalus, Bens., n. s.

Testa umbilicata, globoso-depressa, solida, oblique striatula, striis obsoletis confertis decussata, albida, superne rufo-castanea albido-fulgurata, fascia lata mediana albida et infra altera lata castanea cincta; spira turbinata, apice acutiusculo, sutura submarginata, anfractibus 5 convexis, ultimo rotundato, subtus valde convexo; apertura subobliqua circulari, albida; peristomate duplici breviter adnato, interno vix porrecto, expansiusculo, externo incrassato, reflexo, supra umbilicum angustiusculum subobtectum late auriculato-expanso. Operc. —?

Diam. major 40, minor 32, axis 25 mill.

Hab. in regione Ava regni Burmanorum.

Collected by Mr. Oldham, Chief of the Geological Survey of India. The only specimen received is in very bad condition in respect to surface. It is allied to *Cycl. volvulus*, Müll., but is distinguished by its more depressed form, and by the auriculate process covering the umbilicus, as in some of the Philippine *Cyclophori*.

Cyclophorus Theobaldianus, Bens., n. s.

Testa mediocriter umbilicata, turbinato-depressa, solidiuscula, lineis filiformibus elevatis flexuosis spiralibus, striisque obliquis clathrato-decussata, subtus læviori, castaneo-fusca, superne strigis albidis interruptis picta, subtus area lata pallida, fascia angusta albida

mediana, et infra eam altera lata castanea cineta; spira mediocri, turbinata, apice acutiusculo, sutura distincta; anfractibus 5 convexis, celeriter accrescentibus, ultimo subcarinato, basi convexa; apertura obliqua, subcirculari, ampla, latiuscula, intus albida; peristomate fornicato-reflexo, interdum incrassato, lutescente, breviter adnato, callo parietali superne expansiusculo, angulato-callosa, margine columellari leviter sinuato. Operculo paleaceo, crassiusculo, marginibus anfractuum centralium vix conspicuis, intus umbone minuto munito.

Diam. major 50, minor 39, axis 28 mill.; aperturæ alt. et lat. (perist. incl.) 29 mill.

Hab. ad Thyet Myo, raro occurrens.

Found by Mr. Theobald at the rich locality near the right bank of the Irawadi River, where *Hypselostoma tubiferum*, a small variety of *Cycl. fulguratus*, and other shells were procured.

The thick opaque operculum forms a contrast with the thin horny translucent one of *C. fulguratus*, Pfr.; both species exhibit the central boss which is found in so many of the trans-Gangetic *Cyclophori*. The operculum of *C. Siamensis*, Sow., is thin and translucent, the whorls neatly margined, the inner side highly polished, with a minute central umbo. It is transparent and tinged with orange in the centre, and dark chestnut towards the periphery.

Cyclophorus balteatus, Bens., n. s.

Testa mediocriter umbilicata, solidiuscula, depresso-turbinata, striata, rugis confertissimis vix undulatis spiralibus superne decussata, basi glabra, saturate castanea, baltea angusta mediana, superne laciniata, et periomphalo lato lacteis; spira breviter turbinata, apice acutiusculo; anfractibus 5 convexis, celeriter accrescentibus, penultimo compressiusculo, ultimo rotundato, subtus convexo, ad suturam planulato, antice sensim descendente; apertura obliqua, ovato-circulari, intus lactea; peristomate expanso, inæqualiter incrassato-reflexo, albido, superne undato, marginibus callo brevi, superne angulato, junctis; umbilico profundo, extus infundibuliformi. Operculo —?

Diam. major 40, minor 30, axis 20 mill.

Hab. ad Pegu.

Remarkable for its dark chestnut and milky-white bands, which recall, by their contrast and decided boundaries, the colouring of *Helix hamastoma*. A few white dots may be observed near the suture of the antepenultimate whorl. A single specimen has been received for inspection. Perhaps the irregularity of the peristome may not be constant; but it is so conspicuous, that it has not been deemed advisable to omit it as a specific character.

Cyclophorus Scurra, Bens., n. s.

Testa subanguste umbilicata, tenui, globoso-turbinata, nitida, tenuiter striata, striis exilissimis spiralibus, sub lente vix conspicuis, decussata, albida, superne strigis undatis, lineisque spiralibus, subtus fasciis (submediana majori) castaneis picta; spira turbinato-conica, apice acutiusculo, nigrescente; anfractibus 5 convexis, sensim accrescentibus, ultimo rotundato; apertura vix obliqua, circulari, superne leviter angulata; peristomate simplici, tenui, anguste expansiusculo, albido. Operc. — ?

Diam. major 19, minor 16, axis 14 mill.

Hab. ad Pegu.

A pretty little species, with no very marked character, received by Mr. Theobald with the last from the neighbourhood of the town of Pegu. It is a single specimen, like the other.

Mr. Theobald has, during the late rainy season, verified the occurrence of *Pupina imbricifera*, B., at Teria Ghát, on the ascent of the Khasia Hills from Sylhet. In its operculum he finds the corkscrew formation observable in those of the oriental *Megalomastomata* and *Cataulus*. The shell occurs infrequently on dead boughs of trees. A fine *Cyclophorus* which he got at the same place and at Lacát, proves to be *C. Siamensis*, Sowerby, the received habitat of which may consequently, in the absence of direct testimony to its occurrence in Siam, be subject to doubt. Both *Cyclophorus Pearsoni*, B., and its variety *C. Bensoni*, Pfr., have been taken by Mr. Theobald on the southern face of the Khasia range at Lacát and Chaila, and by Capt. Rowlatt at the northern base of the same mountain group, in Assam. If *C. Siamensis* should have an equal range, the more widely known country of Siam may, from the similarity of sound, have been substituted for Assam. Geographical specific names are better avoided in cases where the collector has not verified the alleged habitats personally. A *Helix* inhabiting China has been called *Senegalensis*, and a bivalve, alien to Gangetic India, has been called *Bengalensis*,—the specimen having been merely purchased in the Calcutta Bazaar, which derives its supplies of shells mainly from the boats of the Maldivian islanders.

Another shell found at Teria Ghát proves to be a dwarf variety of *Pterocyclos Albersi*, Pfr., the habitat of which was previously unknown. It is noted as "not common" by Mr. Theobald, who obtained *Pt. hispidus*, Pearson, abundantly in the same tract, as well as *Hydrocena sarrita*, B. *Cyclophorus zebrinus*, B., was not common at Nanclai.

The late researches of Mr. Theobald, aided in part by Mr. Oldham in Ava, and the Messrs. Blanford in Sikkim, throw

valuable light on the geographical distribution of genera. The tropical island of Borneo, as yet scarcely explored beyond its shores, appears to be a centre of production of the Oriental Cyclostomacea. In it we find representatives of *Cyclophorus*, *Pterocyclos*, *Opisthoporus*, *Cyclotus*, *Leptopoma*, *Diplommatina*, *Alycaeus*, *Rhaphaulus*, *Megalomastoma*, *Hydrocena*, and *Omphalotropis*. To the north-east it sends out an offset to the Philippines, where *Leptopoma* and *Cyclophorus* abound, and *Megalomastoma*, *Cyclotus*, *Pupina* and its allies appear more sparingly. To the south-east, *Cyclophorus*, *Diplommatina*, *Hydrocena*, and *Pupina* proceed along lines extending to the Louisiade Archipelago, New Holland, Lord Howe's Island, and New Zealand. Towards the north-west, with which we are more immediately concerned, the chief branch runs up the Malay Peninsula, first appearing at its extremity, in Singapore, in *Cyclophorus*, *Hydrocena*, and *Pupina*?; at Malacca, in *Cyclophorus*; and at Pulo Pinang and its vicinity, in the same genus, *Leptopoma*, and *Rhaphaulus*. In the Tenasserim Province the family assumes a great development in two or three species of *Cyclophorus*, *Leptopoma*, *Pterocyclos*, *Otopoma**, *Pupina* (2 sp.), *Megalomastoma* (2 sp.), *Rhaphaulus*, *Alycaeus* (2 sp.), and *Hydrocena*. In Pegu and Ava we find eight species of *Cyclophorus*, besides *Leptopoma*, *Pterocyclos*, *Alycaeus* (3 sp.), and *Hydrocena* (2 sp.).

The next point explored to the northward is the Khasia range, where we have seven *Cyclophori*, after deducting a variety and a species which has been erroneously ascribed to the tract; one *Leptopoma*, three *Pterocycli*, two *Diplommatinae*, two *Alycai*, one *Pupina*, and two *Hydrocena*. Following the mountain-chains, round the head of the Assam Valley, to the Himalayan ridge, we come upon *Megalomastoma* in Bhotan; and in Sikkim the family puts forth a great effort in the production of four species of *Cyclophorus*, one *Diplommatina*, three *Alycai*, one *Megalomastoma*, and one *Streptaulus*. Passing the (conchologically) unexplored region of Nipal, the Western Himalaya makes an expiring sign in a single *Cyclophorus*, three *Diplommatinae*, and an *Alycaeus*.

On reviewing the above enumeration of genera and districts, I do not find a single species reproduced in a second tract; each has its own peculiar representatives,—a rule which does not hold good with regard to the Helicidæ, inasmuch as I find

* *Otopoma Blennus* (Annals, vol. xvii. p. 231) has not the solid structure of *O. clathratulum*, nor the descending last whorl; its aperture is less oblique and larger, and the umbilicus is narrower; the operculum, lately forwarded, proves to be calcareous, somewhat concave, and with five gradually increasing whorls on the exterior side, while the inner surface is rather convex, with a central umbo, and only $1\frac{1}{2}$ rapidly increasing turns.

two small *Helices* of the Western Himalaya reappearing in Sikkim, and a third in the Khasia Hills, together with the little *Pupa plicidens*, of which a solid variety occurs at Cherra. *Helix Castra*, B., of Sikkim also recurs in the Khasia Hills* and in Tenasserim; and *Helix delibrata*, a Teria Ghát species, appears again in Tenasserim, under Gould's synonym of *procumbens*. *Helix rotatoria*, V. d. Busch, keeps up the correspondence of the Burmese forms with the island of Java to the south of the Equator, where *Helix Winteri* represents *H. Huttoni*, Pfr., of the Western Himalaya and Darjiling.

A continuous chain of Cyclostomacea, gradually modified and diminishing in the number of forms, runs from Borneo to the regions where the Himalaya bids farewell to a subtropical climate; but of the following genera, viz. *Diplommatina*, *Alycaeus*, *Megalomastoma*, *Rhaphaulus*, *Pupina*, and *Streptaulus*, not a single species has succeeded in crossing the sea, or the barrier of the Gangetic plains, to the central or southern mountains of the Indian Peninsula. The Pupiniform type makes an effort to cross the Bay of Bengal, in *Registoma*, which, in the Nicobars, is associated with *Cataulus*; and the latter genus is fully developed in Ceylon, but does not extend to the Indian Peninsula, where *Cyclophorus*, in varied forms, *Pterocyclos*, *Cyclotus*, and perhaps *Leptopoma*, spread themselves northward. The first two alone attain the banks of the Ganges, at a point within view of the Snowy Peaks which overlook the more productive northern branch of the Malayan stream, along which line, moreover, a *Streptaxis* is found to reach the Khasia region; whereas, by the Cingalese route, the genus does not pass beyond the Nilgherry Mountains in Southern India.

Dr. Pfeiffer has shown himself disposed to include Sowerby's *Cyclostoma Cornu Venatorium* under the Cingalese genus *Aulopoma*, while admitting the absence of the chief character which, apart from the peculiar operculum, distinguishes that genus, viz. the solution of the last whorl. He referred a specimen of *C. Helicinum* to it in the 1st Part of 'Küster's Cyclostomaceen,' and in the 2nd Part figured a shell (plate 49. f. 14-16) under Sowerby's name with doubt. This figure, on comparison with that given in the 'Thesaurus,' cannot be regarded as Sowerby's species. I have always considered that *C. Cornu Venatorium*, S., must be referred to *Cyclophorus*; and a shell found in Ava by Mr. Oldham, agreeing in every respect with that described and figured in the 'Thesaurus,' except in having the apex white,

* The Khasia *Helix plectostoma*, B., common on rocks and trees at Teria Ghát, has been found by the Messrs. Blanford at Darjiling.

appears to leave no doubt on the subject. An immature specimen before me might be supposed to have furnished the engraver with his model; and a larger and more solid specimen, with the thickened peristome fully developed, at once stamps the form as belonging to *Cyclophorus*. The operculum has not been seen. The attention of future collectors in Ava should be particularly directed to the capture of a living example.

Cannes, 15th January 1857.

XVII.—*Notice of a marked variety of Patella vulgata (proposed to be named var. intermedia), found in Guernsey and Jersey (from information communicated by Dr. KNAPP). By ANDREW MURRAY, Edinburgh.*

THE shell in question was collected by Dr. Knapp at St. Owen's Bay in Jersey, and also near St. Samson's in Guernsey. He has never found it either in England or Scotland. He discovered it in both the above islands, along with and in the same localities as *vulgata* and *athletica*; but *athletica* was always nearer low-water mark, and very often in pools submerged, while the present shell was, like *vulgata*, almost invariably nearer high-water mark.

Various differences in the characters of the shells are also to be noted. The animal of the present shell is always black or dark-coloured, while that of *athletica* is white, with a yellow or orange tint; and here Dr. Knapp wishes me to correct a misapprehension into which the late Prof. Edward Forbes had fallen regarding some information given him on this point by Dr. Knapp, and which he has recorded in his 'British Mollusca.' In speaking of the colour of the animal of *athletica*, he states it to be always pale-coloured; but he adds, in a note, "Dr. Knapp, however, has sent us specimens of the China Limpet (*athletica*) from both Guernsey and Jersey, with the note that 'the animal is always black or dark-coloured.'" Now, this is entirely a misapprehension of Dr. Knapp's communication to Prof. Forbes, or, at all events, of what he intended to communicate. The mollusk whose animal he spoke of as being always dark, was this intermediate variety or species. It, as already mentioned, he found to be always dark; but he found *athletica* invariably pale. Prof. Forbes therefore must either have assumed that Dr. Knapp was speaking of *athletica*, or, what appears to me more probable, Dr. Knapp having sent him specimens of this shell with his remarks upon it, Prof. Forbes had determined it in his own mind to be *athletica*, and had thereupon imported the remarks upon it into his description of that species.